

## CIVIL AERONAUTICS BOARD

**ACCIDENT INVESTIGATION REPORT**

Adopted: July 14, 1949

Released: July 15, 1949

**AIRBORNE TRANSPORT, INC.—MIAMI, FLORIDA, DECEMBER 28, 1948****The Accident**

On December 28, 1948, a Douglas DC-3, NC-16002, owned by Karl Knight of Miami, Florida, and leased to Airborne Transport, Inc., an irregular air carrier disappeared while en route from San Juan, Puerto Rico, to Miami, Florida.

**History of the Flight**

At 2203,<sup>1</sup> December 27, 1948, NC-16002 departed from Isla Grande Airport, San Juan, Puerto Rico, for Miami, Florida.

According to the company passenger manifest filed with the Customs Department at San Juan, there were 29 passengers aboard. The crew consisted of Captain Robert E. Linquist, Copilot E. E. Hill, and Stewardess Mary Burke.

Captain Linquist had filed an instrument flight plan with the CAA Air Route Traffic Control Center and the Puerto Rican Transportation Authority; however, this flight plan was cancelled after a delay due to battery difficulties on the airplane. Subsequently the pilot was authorized a VFR takeoff with the understanding that the flight was to remain in the vicinity of San Juan, and attempt to establish radio contact with the tower. Once contact was established, an IFR flight plan would be filed enabling the aircraft to proceed to Miami. If this was impossible, the aircraft was to return to San Juan.

Eleven minutes after takeoff the flight called the airport control tower. The control tower did not receive the call but it was intercepted by CAA Communications at San Juan, to which the flight reported that it was proceeding to Miami, Florida, according to an IFR plan. CAA Communications at San Juan was unable to contact the flight again, although numerous attempts were made. At

2323, the Overseas Foreign Air Route Traffic Control Center at Miami, Florida, received a radio communication from NC-16002 stating it was flying at 8,500 feet in accordance with instrument flight rules and that it estimated its time of arrival over South Caicos at 0033, and Miami at 0405, December 28, 1948.

The New Orleans Overseas Foreign Air Route Traffic Control Center intercepted a position report from NC-16002 at 0413, which stated it was 50 miles south of Miami. This was the last known contact with the aircraft. Unsuccessful attempts were made to contact the flight by CAA Communications from San Juan, Miami, and New Orleans.

The Civil Aeronautics Board at Miami, Florida, was notified by CAA Communications on December 28, 1948, at 0830, that NC-16002 was considerably overdue on a flight from San Juan, Puerto Rico, to Miami, Florida. When it was definitely determined that the aircraft was missing, the United States Coast Guard was alerted and an extensive search was immediately started.

Among those participating in the search were the U. S. Coast Guard, the U. S. Navy, the Fifth Rescue Squadron of the U. S. Air Forces and numerous civil aircraft. Also actively engaged in the search were agencies of the Government of Nassau, the Dominican Republic and the Cuban Government. The search covered an area from San Juan, Puerto Rico, to Cape San Blas in Florida, the peninsula of Florida and the southern coastal area of the United States to Cape Romain, which is located approximately 45 miles north of Charleston, South Carolina. The Gulf of Mexico adjacent to the coast of Florida, the island of Cuba, the north coast of Hispaniola and the Bahama Islands were also searched.<sup>2</sup> Over 1,300 plane hours

<sup>1</sup> All times referred to herein are Eastern Standard and based on the 24-hour clock.

<sup>2</sup> See attached map of area searched.

were flown during the six days of search, from December 28, 1948, to January 3, 1949. In conjunction with the air search, a detachment from the Fifth Rescue Squadron, U. S. Air Forces, conducted a thorough investigation and ground search of portions of the north coast of Cuba. The terrain was both mountainous and jungle, making the search difficult.

### Investigation

The Civil Aeronautics Board investigators coordinated with the U. S. Coast Guard and the Civil Aeronautics Administration, and the Board instituted an investigation of the circumstances pertinent to the flight.

The aircraft was inspected by a CAA Designated Aircraft Maintenance Inspector, and found to be airworthy on December 23, 1948. The last line inspection report, dated December 27, 1948, indicated that a generator voltage regulator was changed. Examination of the company records indicated that NC-16002 had an annual inspection and was recertificated on April 1, 1948. Company records showed that during November 1948, the aircraft was given a partial overhaul, and two newly overhauled engines were installed. Subsequent to this overhaul the aircraft was flown 19 hours, including a round trip between Miami and Teterboro, New Jersey. No evidence of any malfunctioning for this flying time was indicated in the company records.

Further investigation revealed that the company's maintenance records were incomplete. Its Superintendent of Maintenance stated that, at a recent date, new batteries were installed in NC-16002, but no record of this installation was found. Also a San Juan repair agency reported that during October 1948, repair work was performed on a malfunctioning engine of NC-16002. However, evidence that this work was accomplished was not found.

On December 27, 1948, at approximately 1940, NC-16002 landed at San Juan, Puerto Rico, after difficulty with the landing gear. Captain Linquist reportedly said that when the landing gear was lowered, the landing gear warning lights indicated that the gear was not locked. A repair agency on the airport was contacted by the Captain and asked to examine the

aircraft's batteries. They were found to be discharged with the water level low. Advised that it would take several hours to recharge the batteries to their proper operating capacity, the Captain asked the mechanic to add water and return them to the aircraft without charging. The landing gear warning light system was reported as malfunctioning but was not repaired.

At 2030, the crew of NC-16002 filed an IFR flight plan from San Juan to Miami, Florida, with the Flight Information Clerk at the airport and the Captain stated the aircraft was in good working order. However, one hour later the Flight Information Clerk was advised by the flight that the aircraft was having battery trouble and would be delayed. Due to this delay, the flight plan became invalid. Investigation disclosed that at approximately 2245, NC-16002 taxied to the end of Runway 27 and that the tower was unable to contact it by radio. The Chief of Aviation of the Puerto Rican Transportation Authority was informed of this difficulty. He immediately proceeded to the aircraft where he was advised by the crew that the aircraft's radio receiver was functioning properly but that due to weak batteries the transmitter was not. After conferring with the crew and then with the tower by means of the emergency car radio, the Chief of Aviation authorized the flight to make a VFR takeoff. It was agreed that the flight would remain in the vicinity of San Juan until sufficient power was produced by the generators to transmit. If this was accomplished, a new IFR plan was to have been filed and the flight could proceed to Miami. The flight departed at approximately 2303 and eleven minutes later advised CAA Communications at San Juan it was unable to contact the tower and was proceeding to Miami on an IFR plan. Messages were intercepted from the flight while en route, but further attempts to contact the flight relative to the flight plan and to ascertain its position were unsuccessful.

Examination of the weight and balance records of the flight indicated that the aircraft departed from San Juan with 690 gallons of fuel aboard. From contradictory weight and balance and passenger manifests prepared at San Juan, it appears that the aircraft was 118

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pounds overweight at the time of departure.

Investigation of weather conditions existing between San Juan and Miami at the time of takeoff showed scattered clouds at 2,500 feet with the visibility 12 miles, and the wind calm at San Juan. At the cruising level of 8,500 feet, the aircraft would be above scattered clouds with light variable winds and with probably a little drift to the right. Near South Caicos Island, the clouds would increase with tops extending up to and above the cruising level. Winds in this sector were approximately 10 miles per hour from the southwest. Approaching the Nassau and Miami areas, the clouds would become scattered and at 8,500 feet the flight would be again on top. The wind in this sector was northeasterly at approximately 10 miles per hour at the cruising level of 8,500 feet, and this fact was broadcast from Miami at 0015.

Investigation further reveals that Captain Linquist had flown the San Juan-Miami run for Airborne Transport, Inc., as copilot but that this was his first trip as captain for that company. However, he had flown the route for other companies and had had military flying experience in the area.

### Analysis

No examination of the wreckage was possible, as the aircraft is still missing. From the foregoing investigation it appears that the aircraft was in an airworthy condition at the time of departure from Miami, Florida, on December 27, 1948. However, on landing at San Juan approximately seven hours later, difficulty was experienced with the landing gear warning lights. Though the aircraft batteries were found in a discharged condition they were returned to the aircraft without being recharged. No further examination of the aircraft's electrical system, landing gear, or its warning lights was made. Under normal operation, the batteries should have been charged to operating capacity after the seven-hour flight to San Juan. At the time of departure from San Juan the aircraft's transmitter was not functioning, due to discharged batteries. There was no report of any malfunctioning of any part of the aircraft other than the

electrical system, either on the flight to San Juan or while there.

The flight was cleared VFR orally by the Chief of Aviation with the understanding that it remain in the vicinity of San Juan until able to contact the tower, at which time an IFR flight plan to Miami, when filed, would be approved. The basis of this agreement was the belief that the aircraft's generators would shortly produce sufficient current capacity to allow transmission. However, the aircraft took off, and without further contact with the tower, continued on course. Although the original IFR flight plan had been cancelled due to delay in departure it is believed that the pilot thought that it either was, or could be, reinstated. This is substantiated by the fact that eleven minutes after takeoff, CAA Communications in San Juan received a message from the flight which advised that it was unable to contact the tower and was proceeding on the IFR flight plan to Miami.

Testimony indicated that the aircraft was properly equipped with flotation gear, and navigational equipment. It is known that the aircraft's transmitter was operating at 0413, December 28, 1948, when the New Orleans Overseas Foreign Airways Communications Station intercepted a position report which stated the flight was 50 miles south of Miami. It is possible, however, that some failure of the electrical system occurred subsequent to this transmission, making the aircraft's radio and automatic compass inoperative. It is also possible that the pilot may have been in error as to his reported position. Since the aircraft had fuel for 7 1/2 hours of flight, and since the last message was intercepted approximately six hours and 10 minutes after takeoff, an error in location would be critical.

A review of the weather along the route and at the time of the flight indicated a change in wind direction from northwest to northeast as the flight neared Miami with no change in wind velocity from what was forecast. Without crew knowledge of this change, the aircraft could have drifted to the left of the course some 40-50 miles. This information was broadcast from Miami at 0015, but it is not known whether the flight received it.

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The route between San Juan and Miami and the adjacent areas have considerable air and marine traffic and should the aircraft be found, the wreckage will be examined and a supplemental report will be issued by the Board.

### Findings

On the basis of all available evidence the Board finds that:

1. The carrier, aircraft, and the crew were certificated; however, at the time of take-off, the aircraft did not meet the requirements of the operating certificate.
2. The aircraft's batteries, when examined at San Juan, were found in a discharged condition and returned to the aircraft without being recharged.
3. The aircraft's electrical system, including the transmitter, was malfunctioning at the time of departure from San Juan.
4. Eleven minutes after takeoff, two-way communication was established between the flight and the Overseas Foreign Airways Communication Station at San Juan.
5. Messages from the flight were intercepted by the Overseas Foreign Airways Communication Stations at Miami, Florida, and New Orleans, Louisiana, but neither was able to contact the flight.

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6. An unpredicted wind change from northwest to northeast occurred en route.

7. The last reported position of the aircraft was 50 miles south of Miami, at which time the aircraft was six hours and ten minutes out of San Juan.

8. The aircraft had fuel for 7 1/2 hours of flight.

9. An extensive search by the Search and Rescue Agency of the United States Coast Guard, utilizing facilities of other services, civil aircraft and ground parties, failed to locate any trace of the missing aircraft and was terminated six days later.

### Probable Cause

The Board lacks sufficient information in this case to determine the probable cause.

BY THE CIVIL AERONAUTICS BOARD:

/s/ JOSEPH J. O'CONNELL, JR.

/s/ OSWALD RYAN

/s/ JOSH LEE

/s/ HAROLD A. JONES

Russell B. Adams, Member of the Board, did not participate in the adoption of this report.

## Supplemental Data

### Investigation and Hearing

The Civil Aeronautics Board's Miami, Florida, office, was notified 0830, December 28, 1948, by CAA Communications that NC-16002 was considerably overdue on a flight from San Juan, Puerto Rico, to Miami, Florida. An investigation was begun immediately in accordance with the provisions of Section 702 (a) (2) of the Civil Aeronautics Act of 1938, as amended. As a part of the investigation, a hearing was held February 18, 1948, at Coral Gables, Florida.

### Air Carrier

Airborne Transport, Inc., was incorporated under the laws of the State of New York with its principal office at New York, N. Y. The company held a letter of registration, No. 1937, issued to it pursuant to Section 292.1 of the Economic Regulations and an operating certificate No. 1-654, issued by the Administrator of Civil Aeronautics.

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### Flight Personnel

Pilot R. E. Linquist, age 28, held an airman certificate with a commercial pilot and instrument rating. His last instrument check was accomplished October 6, 1948, and he received his last CAA physical examination January 29, 1948. He had a total of 3,265 flying hours.

Copilot E. E. Hill, age 22, held an airman certificate with a commercial pilot and instrument rating. His last instrument check was accomplished July 31, 1948, and his last CAA physical examination May 17, 1948. When the accident occurred he had a total of 197 flying hours.

### The Aircraft

NC-16002 was a Douglas DC-3. It was manufactured June 12, 1936, had a total of 28,257 hours and was currently certificated. The aircraft was equipped with two Wright 1820-G102A engines with Hamilton Standard Hydromatic Propellers.

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